REMARKS

Claims 1-25 and 27-44 remain in the present application. Claims 1, 5, 9, 15, 21, 28 and 30 are amended herein. Applicants respectfully submit that no new matter has been added as a result of the claim amendments. Applicants respectfully request further examination and reconsideration of the rejections based on the arguments set forth below.

Allowable Subject Matter

Applicants would like to thank the Examiner for the indication that Claims 24, 36-37 and 43-44 would be allowable if rewritten in independent form.

Claim Rejections – 35 U.S.C. §103

Claims 28-30

Claims 28-30 are rejected under 35 U.S.C. §103(a) as being unpatentable over United States Patent Number 6,188,394 to Morein et al. (hereafter referred to as "Morein") in view of "Fast Spheres, Shadows, Textures, Transparencies, and Image Enhancements in Pixel-Planes" by Fuchs et al. (hereafter referred to as "Fuchs"), and further in view of United States Patent Number 6,366,289 to Johns (hereafter referred to as "Johns"). Applicants have reviewed the cited references and respectfully submit that the embodiments of the present invention as recited in Claims 28-30 are not rendered obvious by Morein in view of Fuchs in view of Johns for the following reasons.

Applicants respectfully direct the Examiner to independent Claim 28 that recites a method for reading a frame buffer comprising (emphasis added):

> receiving an address corresponding to a pixel, said address associated with a virtual frame buffer operable to map a pixel address into a plurality of subpixel addresses;

transforming the received address into multiple subpixel addresses, wherein each of said multiple subpixel addresses comprises a mapped subpixel address;

reading at least two subpixels from the frame buffer using at least two of the multiple subpixel addresses, wherein the frame buffer comprises a plurality of pixels, wherein each pixel comprises a plurality of subpixels; and

blending the at least two subpixels to create a pixel value for said pixel.

Independent Claim 30 recites limitations similar to those of independent Claim 28. Claim 29 depends from independent Claim 28 and recites further limitations to the claimed invention.

Page 14 of the rejection states that Morein and Fuchs fail to teach or suggest a virtual frame buffer as claimed. Applicants concur.

Applicants respectfully submit that Johns, either alone or in combination with the cited Morein/Fuchs combination, also fails to teach or suggest the limitations of "said address associated with a virtual frame buffer operable to map a pixel address into a plurality of subpixel addresses" as recited in independent Claim 28. As recited and described in the present application, a recited address corresponding to a pixel is associated with a virtual frame buffer (e.g., virtual frame buffer 304 of Figures 4 and 5 of the present application). The virtual frame buffer is operable to map a pixel address to a plurality of subpixel addresses.

In contrast to the claimed embodiments, Applicants understand Johns to teach a virtual frame buffer which maps a pixel address into an address associated with a *pixel* (line 59 of col. 16 to line 3 of col. 17). Accordingly, Applicants respectfully submit that Johns teaches away from the claimed

embodiments by teaching a virtual frame buffer which performs *pixel-to-pixel mapping* instead of *pixel-to-multiple subpixel* mapping as claimed.

Applicants respectfully submit that Morein and Fuchs, either alone or in combination, fails to teach or suggest the limitations of "wherein each of said multiple subpixel addresses comprise mapped subpixel addresses" as recited in independent Claim 28. Additionally, Applicants respectfully submit that Johns, either alone or in combination with the cited Morein/Fuchs combination, also fails to teach or suggest the limitations of "wherein each of said multiple subpixel addresses comprise mapped subpixel addresses" as recited in independent Claim 28. As recited and described in the present application, a received address is transformed into multiple subpixel addresses, wherein each of the multiple subpixel addresses comprises a mapped subpixel address.

In contrast to the claimed embodiments, Applicants fail to find any teaching or suggestion in Morein and/or Fuchs of multiple mapped subpixel addresses which were transformed using an address corresponding to a pixel as claimed. Further, Applicants fail to find any teaching or suggestion in Johns of multiple mapped subpixel addresses as claimed. Further, Applicants fail to find any teaching or suggestion in Johns of such mapped subpixel addresses *which were transformed from a pixel address* as claimed. Accordingly, Applicants reiterate that Morein, Fuchs, and Johns, either alone or in combination, fail to teach or suggest the limitations of "wherein each of said multiple subpixel addresses comprise mapped subpixel addresses" as recited in independent Claim 28.

Further, Applicants respectfully submit that the Examiner has failed to provide a suggestion or motivation for combining Morein, Fuchs, and Johns in the claimed fashion in accordance with MPEP §2143. Accordingly, Applicants respectfully request that the Examiner provide such a suggestion or motivation in the next Office Action, or otherwise, Applicants respectfully request that the Examiner withdraw the rejection.

For these reasons, Applicants respectfully submit that independent Claim 28 is not rendered obvious by Morein in view of Fuchs in view of Johns, thereby overcoming the 35 U.S.C. §103(a) rejections of record. Since independent Claim 30 recites limitations similar to those discussed above with respect to independent Claim 28, independent Claim 30 also overcomes the 35 U.S.C. §103(a) rejection of record. Since dependent Claim 29 recites further limitations to the invention claimed in independent Claim 28, dependent Claim 29 is also not rendered obvious by Morein in view of Fuchs in view of Johns. Therefore, Claims 28-30 are allowable.

Claims 1-4, 9-10, 13, 15-17, 19, 21-23 and 32-35

Claims 1-4, 9-10, 13, 15-17, 19, 21-23 and 32-35 are rejected under 35 U.S.C. §103(a) as being unpatentable over Morein in view of Johns. Applicants have reviewed the cited references and respectfully submit that the embodiments of the present invention as recited in Claims 1-4, 9-10, 13, 15-17, 19, 21-23 and 32-35 are not rendered obvious by Morein in view of Johns for the following reasons.

Applicants respectfully direct the Examiner to independent Claim 1 that recites a method for providing antialiased memory access comprising (emphasis added):

> receiving a request to access a memory address; and
> determining if the memory address is within a virtual frame buffer and, if so, performing the following:
> transforming the memory address into at least one physical address within a frame buffer utilized for antialiasing, wherein said memory address is associated with a pixel, wherein said at least one physical address is associated with a plurality of subpixels and generated using a virtual frame buffer, wherein said frame buffer is a single memory comprising data associated with said plurality of subpixels, wherein said plurality of subpixels correspond to at least one pixel of said virtual frame buffer; and
> accessing data associated with a subpixel at the at least one physical address within the frame buffer.

Independent Claims 9, 15, 21 and 32 recite limitations similar to independent Claim 1. Claims 2-4, 10, 13, 16-17, 19, 22, 23 and 33-35 depend from their respective independent Claims and recite further limitations to the claimed invention.

Applicants respectfully submit that Morein fails to teach or suggest the limitations of "transforming the memory address into at least one physical address within a frame buffer utilized for antialiasing," "wherein said memory address is associated with a pixel" and "wherein said at least one physical address is associated with a plurality of subpixels and generated using a virtual frame buffer" as recited in independent Claim 1. As recited and described in the present application, a memory address associated with a pixel is transformed into at least one physical address associated with a plurality of subpixels.

In contrast to the claimed embodiments, Applicants understand Morein to teach a pointer from a memory address in a frame buffer (36) to a memory address in a shared memory (38), where both memory addresses are associated

with sample sets. For example, Morein teaches that compressed sample sets are stored in frame buffer 36 and uncompressed sample sets are stored in sample memory 38 (Abstract; col. 5, lines 37-67). Assuming arguendo that a sample set as taught by Morein is analogous to a plurality of subpixels as claimed, and also assuming arguendo that the presence of a pointer as taught by Morein is analogous to transforming a memory address as claimed, Applicants respectfully submit that Morein teaches away from the claimed embodiments by teaching a subpixel-to-subpixel address transformation instead of a pixel-to-subpixel address transformation as claimed.

Applicants respectfully submit that Johns, either alone or in combination with Morein, also fails to teach or suggest the limitations of "transforming the memory address into at least one physical address within a frame buffer utilized for antialiasing," "wherein said memory address is associated with a pixel" and "wherein said at least one physical address is associated with a plurality of subpixels and generated using a virtual frame buffer" as recited in independent Claim 1. In contrast to the claimed embodiments, Applicants understand Johns to teach a virtual frame buffer which maps a pixel address into an address associated with a *pixel* (line 59 of col. 16 to line 3 of col. 17) as discussed above. Accordingly, Applicants respectfully submit that Johns teaches away from the claimed embodiments by teaching a *pixel-to-pixel mapping* instead of *pixel-to-multiple subpixel* transformation as claimed.

For these reasons, Applicants respectfully submit that independent Claim 1 is not rendered obvious by Morein in view of Johns, thereby overcoming the 35 U.S.C. §103(a) rejections of record. Since independent Claims 9, 15, 21 and 32 contain limitations similar to those discussed above with respect to independent

Claim 1, independent Claims 9, 15, 21 and 32 also overcome the 35 U.S.C. §103(a) rejections of record. Since dependent Claims 2-4, 10, 13, 16-17, 19, 22-23 and 33-35 recite further limitations to the invention claimed in their respective independent Claims, dependent Claims 2-4, 10, 13, 16-17, 19, 22-23 and 33-35 are also not rendered obvious by Morein in view of Morein. Therefore, Claims 1-4, 9-10, 13, 15-17, 19, 21-23 and 32-35 are allowable.

Claims 5-6, 11-12, 18 and 25

Claims 5-6, 11-12, 18 and 25 are rejected under 35 U.S.C. §103(a) as being unpatentable over Morein in view of Johns, further in view of United States Patent Number 5,664,162 to Dye (hereafter referred to as "Dye"), and further in view of United States Patent Application Publication Number 2002/0140655 of Liang et al. (hereafter referred to as "Liang"). Applicants have reviewed the cited references and respectfully submit that the embodiments of the present invention as recited in Claims 5-6, 11-12, 18 and 25 are not rendered obvious by Morein in view of Johns further in view of Dye and further in view of Liang for the following reasons.

Page 11 of the rejection states that Morein, Johns, and Dye fail to teach or suggest the limitations of providing a pitch value of the frame buffer as recited in Claim 5, and similarly recited in Claims 11, 18 and 25. Applicants concur and respectfully submit that Morein, Johns, and Dye also fail to teach or suggest the limitations of "wherein said pitch value comprises a distance in address units between two of said plurality of subpixels" as recited in Claim 5, and similarly recited in Claims 11, 18 and 25.

Applicants respectfully submit that Liang, either alone or in combination with the cited Morein/Johns/Dye combination, also fails to teach or suggest the limitations of "wherein said pitch value comprises a distance in address units between two of said plurality of subpixels" as recited in Claim 5, and similarly recited in Claims 11, 18 and 25. In contrast to the claimed embodiments, Applicants understand Liang to teach a pitch value associated with pixels of a physical (e.g., an LCD) display (Abstract; paragraph 2). Applicants respectfully submit that although pixels of an LCD display may have a pitch, the pitch represents a physical distance between the pixels. As such, Applicants respectfully Liang teaches away from the claimed embodiments by teaching a pitch value in units of physical distance instead a pitch value in address units as claimed.

Additionally, Applicants respectfully submit that Dye and/or Liang, either alone or in combination with the cited Morein/Johns combination, also fails to teach or suggest the limitations of "transforming the memory address into at least one physical address within a frame buffer utilized for antialiasing," "wherein said memory address is associated with a pixel" and "wherein said at least one physical address is associated with a plurality of subpixels and generated using a virtual frame buffer" as recited in independent Claim 1, and similarly recited in independent Claims 9, 15, and 21. Since Claims 5-6, 11-12, 18 and 25 recite further limitations to the invention claimed in their respective independent Claims, Claims 5-6, 11-12, 18 and 25 are not rendered obvious by Morein in view of Johns further in view of Dye and further in view of Liang. Thus, Claims 5-6, 11-12, 18 and 25 overcome the 35 U.S.C. §103(a) rejections of record, and are therefore allowable.

Claims 7-8, 14, 20, 27 and 38-42

Claims 7-8, 14, 20, 27 and 38-42 are rejected under 35 U.S.C. §103(a) as being unpatentable over Morein in view of Johns, further in view of United States Patent Number 5,594,854 to Baldwin et al. (hereafter referred to as "Baldwin"), and further in view of Fuchs. Applicants have reviewed the cited references and respectfully submit that the embodiments of the present invention as recited in Claims 7-8, 14, 20, 27 and 38-42 are not rendered obvious by Morein in view of Johns further in view of Baldwin and further in view of Fuchs for the following reasons.

Applicants respectfully submit that Baldwin and/or Fuchs, either alone or in combination with the cited Morein/Johns combination, also fails to teach or suggest the limitations of "transforming the memory address into at least one physical address within a frame buffer utilized for antialiasing," "wherein said memory address is associated with a pixel" and "wherein said at least one physical address is associated with a plurality of subpixels and generated using a virtual frame buffer" as recited in independent Claim 1, and similarly recited in independent Claims 9, 15, 21, 32, and 39. Consequently, since Claims 7-8, 14, 20, 27, 38 and 40-42 recite further limitations to the invention claimed in their respective independent Claims, Claims 7-8, 14, 20, 27, 38 and 40-42 are not rendered obvious by Morein in view of Johns further in view of Baldwin and further in view of Fuchs. Thus, Claims 7-8, 14, 20, 27 and 38-42 overcome the 35 U.S.C. §103(a) rejections of record, and are therefore allowable.

Claim 31

Claims 31 is rejected under 35 U.S.C. §103(a) as being unpatentable over Morein in view of Fuchs, further in view of Johns, and further in view of United

States Patent Number 7,158,148 to Toji et al. (hereafter referred to as "Toji"). Applicants have reviewed the cited references and respectfully submit that the embodiments of the present invention as recited in Claim 31 are not rendered obvious by Morein in view of Fuchs further in view of Johns and further in view of Toji for the following reasons.

Applicants respectfully submit that Toji, either alone or in combination with the cited Morein/Fuchs/Johns combination, also fails to teach or suggest the limitations of "said address associated with a virtual frame buffer" as recited in independent Claim 30. Consequently, since Claim 31 recites further limitations to the invention claimed in independent Claim 30, Claim 31 is not rendered obvious by Morein in view of Fuchs further in view of Johns and further in view of Toji. Thus, Claim 31 overcomes the 35 U.S.C. §103(a) rejections of record, and is therefore allowable.

CONCLUSION

Applicants respectfully submit that Claims 1-25 and 27-44 are in condition for allowance and Applicants earnestly solicit such action from the Examiner.

The Examiner is urged to contact Applicants' undersigned representative if the Examiner believes such action would expedite resolution of the present application.

Please charge any additional fees or apply any credits to our PTO deposit account number: 50-4160.

Respectfully submitted,

MURABITO, HAO & BARNES LLP

Dated: 2/19, 2008

BMF

Bryan M. Failing
Registration No. 57,974

Two North Market Street
Third Floor
San Jose, CA 95113
(408) 938-9060